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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/077,760

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Jun Koyama

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EXAMINER

NGUYEN, THINH T

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 04/25/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/077,760

Applicant(s)

KOYAMA, JUN

Examiner

Thinh T Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-69 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-69 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED OFFICE ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP paragraph 606.01).

A title such as -- Organic Light Emitting Device with constant illumination -- is suggested.

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

3. The specification is objected to for the following irregularities:

A/ The applicant division of the invention into three embodiment modes and 14 embodiments make the invention very confusing. what are the distinction between the embodiments and embodiment modes ?

Corrections and clarifications are required.

B/ Applicant description of embodiments mode 1 to 3 using fig 2, fig 7, fig 8 For supporting the claim and recites there is a transistor Tr5 that perform certain function. none of the above figures (fig 2,fig 7, fig 8) show the transistor Tr5.

Corrections and clarifications are required.

C/ there are many mix-ups in the subscripts in the designation of Tr1, Tr2, Tr3, Tr4, Tr5 thorough the specification. These mix-ups make the description of the invention very confusing: a good example of these errors can be shown for example on page 9 line 4 with the description of embodiment mode 1 (fig 2) when the applicant claim the drain region of transistor Tr3 is connected to the OLED which is different with fig 2 that has transistor Tr2 drain region connected with the electrode of the OLED.

corrections of the correct subscripts and the use of correct supporting figures that has all the elements and the complete connections within the elements are required.

The examiner suggests that the applicant completely revises the specifications for subscripts errors and the drawings so that they clearly show what the applicant intend to claim. There are at least six transistors each with a different function and the errors on the designation of the transistors make it very difficult to understand how these elements are connected to perform their functions in the specifications and the claims.

D/ in embodiment mode 1 on line 21,27 page 8; line 14 page 9 of the specification applicant mention about transistor Tr5 on fig. 2 that has to meet some limitation but there is no transistor Tr5 show in this figure.

E/ the explanation of the invention using fig.2 has lots of errors on the subscripts that designate different transistors using the specification and fig.2 there are errors:

i/ on page 8 line 23 Tr5 should be --Tr3 --.

ii/ on page 8 line 25 Tr4 should be -- Tr3 --.

iii/ on page 8 line 27 Tr5 should be -- Tr3 --

iv/ the sentence on line 3 and 4 of page 9 contradicts the sentence on line 30 page 8 since applicant on line 3 and 4 of page 9 claim the gate electrode of transistor Tr2 is connected to a drain region however line 30 page 8 recite that the gate of Tr1 and Tr2 are connected together.

v/ on lines 5-6 of page 9 "transistor Tr3 " should be -- transistor Tr2--.

vi/ on line page 14,15 in the explanation of the operation of embodiment mode 2 applicant mentions Transistor Tr5 on fig 7. there is no transistor Tr5 shown in fig 7.

vii/ Applicant mentions Transistor Tr5 in the explanation of the operation of embodiment mode 3 using fig 8, there is no transistor Tr5 in fig 8.

viii/ Applicant mentions Transistor Tr5 in the explanation of the operation of embodiment 4 using fig 8 and fig 16 there is no transistor Tr5 in fig 8 or fig 16.

F/ There is no figure with schematic diagram to show all the components and the operation of embodiment 5

Drawings

4. Drawings fig 2, fig 7, fig 8, fig 16 are objected to since they do not show the existence of transistor Tr5 that was described in different embodiments.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and the manner and process of making

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and using it, in such full clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1,4,7 are rejected under 35 U.S.C.112, first paragraph, as based on a disclosure which is not enabling.

A/ Claim 1, 4, 7 recite “ wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the **drain region**. “.

It is not clear what transistor this drain region belongs to?

B/ Claim 1,4,7 recite “ the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode”.

None of the figure show a connection between the OLED and Transistor Tr3.

C/ Claim 1,4,7 also recite “the drain region of the first transistor and a gate electrode of the third transistor are connected to each other for a certain period in one frame period.” it look like in order to perform this step applicant need to have an extra switching elements (an extra fourth transistor for example) that can be integrated into the pixel driving circuit and nowhere the switching element was shown on all the figure In the specification.

7. Claims 10,14,18,22,26,30,34,38,42,50,54,58,62,66 are rejected under 35 U.S.C.112, first paragraph, as based on a disclosure which is not enabling.

A/ Claims 10,14,18,22,26,30,34,38,42,50,54,58,62,66 recite “ wherein the gate electrode of the first transistor is connected to the gate electrode of the second transistor and to the **drain region**. “.

It is not clear what transistor this drain region belongs to?

B/ Claim 10,14,18,22,26,30,34,38,42,50,54,58,62,66 also recite " the drain region of the third transistor is connected to a pixel electrode of the organic light emitting diode".

None of the figure show a connection between the OLED and Transistor Tr3.

8. The following is a quotation of the second paragraph of 35 U.S.C.112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which applicant regards as his invention.

9. claims 58,62,66 are rejected under 35 U.S.C. 112 second paragraph as containing subject matters that do not have antecedent basis.

There is no antecedent basis for **sixth transistor** in those claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1-69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sedra and Smith (microelectronic circuit by Saunders College Publishing; third edition; 1991 chapter 6.7) in view of Kawashima et al. (US patent 6091203) and Yumoto et al. (Asia Display literature by Sony : Pixel-Driving methods for Large-sized Poly-Si AM-OLED displays provided by Applicant Information Disclosure Statement).

All these teachings are related to how to maintain a constant drive for a load using micro-circuit transistors.

REGARDING CLAIMS 1,4,7,10,14,18,22,26,30,34,38,42,46, 50,54,58,62,66

Sedra and Smith (a regular college textbook) teach how to drive an active load (fig 6.32 page 454) using a differential MOS amplifier that has two to four FET transistors with constant current source. Meanwhile, Kawashima et al. (the abstract, fig 6 to fig 15) teach how to control the current of the active element using multiple switching transistors and driver transistors and Yumoto et al. (fig 1,fig 2,fig 3, fig 4 Fig 5) teach how to drive the OLED based-pixel using FET transistor and capacitor.

It would have been obvious to one of ordinary skill in the art the time the invention was made to use the teachings of Sedra and Smith, Kawashima et al., Yumoto and the common knowledge in the art in order to come up with the invention of claims 1,4,7,10,14,18,22,26,30,34,38,42,46,50,54,58,62,66.

The reasoning is as follows:

A person of ordinary skill in the art would have been motivated to modify the basic constant current drive circuit using different extra switching components in order to achieves a display device with constant luminance in response to the demand of

high-quality display in the electronics industry.

REGARDING CLAIMS 2, 5,8,11,12,15,16,19,20,23,24,27,28,31,32,35,36,39,40,
43,44,47,48,51,52,55,56,59,60,63,64,67,68.

The selection of the polarities of different transistors is considered routine skill for a person with ordinary skill in the art.

REGARDING CLAIMS 3,6, 9,13,17,21,25,29,33,37,41,45,49,53, 57,61,65,69.

The fact that an organic light emitting device can incorporate into an electronic equipment selected from the group consisting of an organic light emitting diode display device, a digital still camera, a mobile computer, a portable image reproduction apparatus, a goggle type display, a video camera, and a portable telephone is inherent to this organic light emitting device.

Double Patenting

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-67 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-197 of copending Application No. 10/077,830 related to the invention of a light emitting device and electronic appliance and claims 1-62 of copending application 10/230,068 related to a light emitting device, method of driving a light emitting device, element substrate and electronics equipment.

Although the conflicting claims are not identical, they are not patentably distinct from each other.

It would have been obvious for a person of ordinary skill in the art to derive the teachings in claims 1-197 of copending application 10/077,830 and claims 1-62 of copending application 10/230,068 in order to come up with claims 1-69 of the present application.

The reasoning is as follows:

A person of ordinary skill in the art would have been motivated to modify the circuit and use the teachings of the two above copending application in order to

fabricate a OLED device that has constant luminance as required by the demand of the electronics industry.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

14. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

15. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

16. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

17. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Howard et al. (US patent 6023259) disclose an OLED active matrix using a single transistor current mode pixel design; Kim et al. (US patent 6535185) disclose an active driving circuit for display panel; Prache et al. (US patent Application

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Publication US 2001/0045929) disclose a gray scale pixel driver for electronic display and method of operation therefor.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose phone number is (703) 305-0421. The Examiner can normally be reached on Monday to Friday from 8.30 A.M. to 5.00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, David C. Nelms can be reached on (703) 308-4910. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7724.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen *TN*

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HOAI HO

HOAI HO
PRIMARY EXAMINER